Studies on Pacific Ferns, Part II
Humata and *Ctenopteris*

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The present paper continues the discussion of problems discovered in nomenclature and distribution of some groups of South Pacific ferns. The first section covers several species of the genus *Humata,* the second, species of *Ctenopteris,* and the third clarifies an apparent error as to the origin of a particular collection of ferns from Aneityum Island in the New Hebrides.

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A. Species of the genus *Humata*

Although Christensen's monograph on the Pteridophyta of Samoa did much to clear up the uncertainty as to the specific limits in the genus *Humata,* it appeared that some aspects required further investigation. The results of this investigation are given in this section, and the present author feels that the position is now clarified for Fiji, Samoa, and Aneityum. Insufficient material was available to be certain of the true situation in New Caledonia, and it appears necessary to await further collections from that island before giving a definite verdict.

Humata sessilifolia (Bl.) Mett.

Davallia aemula Mett. Kuhn Linn. 36: 144, 1869.

Humata aemula (Mett.) Carr. In Seem. Fl. Vit. 335, 1873.

H. aemula was based on a collection by MacGillivray from Aneityum in the New Hebrides and was distinguished by the possession of longer stipes than is usual in *H. sessilifolia.* Very little material from the New Hebrides has been seen, but an examination of Fijian specimens shows the length of stipe to be extremely variable, even on the same plant. This variability is not apparent in Malaysia but occurs also in New Guinea. In the Fijian examples fronds were noted with stipes varying in length from less than 1 cm. to 4 cm., sometimes on the same specimen. In view of this grading of a character previously thought to be distinctive, it appears necessary to reduce *H. aemula* to a synonym of *H. sessilifolia.*

Specimens examined: New Hebrides—MacGillivray 64 (Kew), Milne 456 (Kew). Fiji—Milne 215 (Kew), 251 (Kew), unnumbered (BM), Horne 805 (Kew), im Thurn 131 (Kew), Thurston unnumbered (Kew), Gibbs 866 (BM), Smith 742 (Kew, BM), 5406 (Kew).

Humata serrata Brack.

Humata serrata Brack. Expl. Exped. 16: 230, 1854; C. Chr. B. P. Bishop Mus. Bull. 177: 38, 1943 (in part).

Davallia botrychioides Brack. var. *multifida* Carr. Christ Engler Bot. Jb. 23: 339, 1897.

Much of the confusion concerning this species has been cleared up by Christensen, but he still gives the distribution as Samoa, Fiji, and New Caledonia. All Fijian specimens, however, have the lamina of the fertile frond more reduced than is the case with the Samoan material, and they invariably lack the horn projecting beyond the sorus. In general, specimens from New Caledonia identified as *H. serrata* are smaller in size than the Samoan ones and approach closer to the local *H. pusilla* in the extreme serrations of the sterile frond. In view of this it appears preferable to restrict the name *H. serrata* to Samoan material.

Specimens examined: All from Samoa—U. S. Explor. Exped. 6 (Kew), Powell 136

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(Kew), Whitmee 36 (Kew, BM), 43 (Kew), Christopherson 129 and 177 (BM), McKee 2969 (BM).

Humata botrychioides Brack.

Humata botrychioides Brack. Explor. Exped. 16: 231, 1854.

As pointed out above, this differs from *H. serrata* in the extreme reduction of the lamina of the fertile frond, giving it a more delicate appearance, and in the consistent absence of the horn projecting beyond the sorus. Brackenridge's collection was made in Fiji and the specimens seen from those islands match his plate perfectly.

SPECIMENS EXAMINED: All from Fiji—Milne 330 in part (Kew), Thurston unnumbered (Kew), Graeffe 101 (BM), Smith 453 (BM).

Humata multifida (Bak.) Carr. ex Brownlie.

Humata multifida Carr. In Seem. Fl. Vit. 335, 1873 (nomen).
Davallia multifida Bak. Syn. Fil. 467, 1874.
Humata botrychioides Brack. var. *multifida* Carr. C. Chr. Ind. Fil. 354, 1906.

Baker originally distinguished this from *H. botrychioides* by the larger, more compound frond, and smaller sori with a horn projecting beyond them. These distinctions, especially the possession of a definite projecting horn, hold good for material from Aneityum. The fertile fronds are similar in appearance to those of *H. botrychioides* with extremely reduced lamina, but the projecting horn is very obvious, being even longer than that seen in *H. serrata.* However, no specimens from islands other than Aneityum have this type of frond and it appears that the species is restricted to that island or possibly to the New Hebrides group.

SPECIMENS EXAMINED: All from Aneityum —MacGillivray 43 (Kew, BM), Milne 294 and 367 (Kew), Milne ex herb. J. Smith unnumbered (BM), Macleay unnumbered (Kew).

B. SPECIES OF THE GENUS *Ctenopteris*

The genus *Ctenopteris* has not previously been closely examined for the South Pacific area, apart from Christensen's clarification of names for the Samoan species. It was quickly apparent that several of the species from different islands, described under different names, are in fact identical. The following section covers the main aspects cleared up in this genus, but further work is required on material from the Society Islands.

Ctenopteris crassifrons (Bak.) Brownlie, comb. nov.

Polypodium crassifrons Bak. Syn. Fil. 325, 1867.
Polypodium stenopteron Bak. J. Bot. 24: 183, 1886.
Polypodium purpurascens Nad. Copel. B. P. Bishop Mus. Bull. 59: 100, 1929 (excluding Society Is.).

Copeland wrongly identified Baker's *P. stenopteron* from Fiji with *P. purpurascens.* In his monograph on the ferns of the Society Islands, however, he states that the latter species has the surface densely beset with minute black hairs, whereas Baker's type at Kew has both surfaces of the frond thickly covered with sizeable reddish-brown hairs. This is also the case in the type specimen of *P. crassifrons,* which in addition has the soral characters identical with those of *P. stenopteron.* Since *P. crassifrons* is the earliest description, the name for both the Fijian and the New Caledonian plants should be *Ctenopteris crassifrons.*

SPECIMENS EXAMINED: All at Kew; Fiji—Thurston unnumbered (Baker's type), Parkes 20820, Smith 4986 and 5178, im Thurn F. 26; New Caledonia—Deplanche no. 2 (Baker's type), Herb. Macleay unnumbered.

Ctenopteris seemanni (J. Sm.) Brownlie, comb. nov.

Polypodium contiguum Brack. Explor. Exped. 16: 6, pl. 2, 1854 (not of others).
Cryptosorus seemanni J. Sm. Bonplandia 9: 262, 1861.
Polypodium lepidum Brause Notizbl. Bot. Gart. Berl.-Dahlem 8: 139, 1922; C. Chr. B. P. Bishop Mus. Bull. 177: 113, 1943.
Polypodium seemanni (J. Sm.) Copel. B. P. Bishop Mus. Bull. 93: 69, 1932.

Christensen has already pointed out that the Fijian *P. seemanni* and the Samoan *P. lepidum* may not be distinct from one another. In fact, the lengthened fertile segments which are char-

acteristic of *P. lepidum* are shown also in some of the Fijian specimens examined, notably Horne 728 and Seemann 821. Although the variability is greater in material from Fiji, I have no doubt that there is only one good species represented. The range of the species is extended to Aneityum by two collections from that island, previously identified as *Polypodium blechnoides,* which have the characteristic elongated fertile segments of the Samoan form.

SPECIMENS EXAMINED: All at Kew; Fiji—Brackenridge 7, Seemann 821, Horne 728, Smith 1898 and 6436; Samoa—Whitmee 128, Powell unnumbered; Aneityum—Milne 317, Kajewski 886.

Ctenopteris hornei (Bak.) Brownlie, comb. nov.

Polypodium hornei Bak. J. Bot. 17: 298, 1879.

This species appears to be closely related to the preceding one, and in fact may be only a form of it, but as I have seen no material other than Baker's type specimen, it is better retained in the meantime as distinct. It differs in the rounder sori, distinctly pubescent stipe, and the more plentiful pubescence on the rachis. The stipe is also markedly shorter.

SPECIMEN EXAMINED: Fiji—Horne unnumbered (Kew, Baker's type).

C. ON A COLLECTION FROM ANEITYUM ISLAND

During the course of the above investigations the present author had reason to refer to Kuhn's two papers "Reliquiae Mettenianae" in which several type specimens from Aneityum were ascribed to Cuming during the years 1858–60. It was realised that these could not possibly have been collected by Cuming at the time indicated inasmuch as he had been in the Pacific in the 1830's. Specimens with the same collection numbers as given by Kuhn were found at Kew and at the British Museum (Natural History), those at Kew having no collector's name but those at the British Museum having MacGillivray's name added later. Through the kindness of the late Mr. A. H. G. Alston, photographs of the specimens of *Humata aemula* from the herbaria of Mettenius and Kuhn were compared with the sheets located in England. The example from Mettenius' herbarium had a printed label with the number (64) and "Aneitum, New Hebrides, Feb. 1860" with "Mountain woods on trees" added in writing in the same manner as on the English sheets. Other labels had been added by Mettenius. From the Kuhn herbarium the one sheet had written labels only, so it appears that those specimens may have been separated from an original sheet. Although the numbers were the same in every case, the dates varied on the four sheets from December, 1858, to February, 1860, making it appear that the numbers were given by the collector to everything that appeared to be the same species. Comparison of other sheets at Kew and the British Museum showed the same discrepancy in dates.

An account of MacGillivray by Maiden (1909) showed that he was resident in Sydney at the time and was known to make trips to the Pacific islands, so it appeared possible that he was responsible for the collections. In fact, in the "Synopsis Filicum" Baker (1874) ascribed the specimens to MacGillivray without indicating the reason for his disagreement with Kuhn. The final solution came with a comparison of the writing on the original labels (the words "Mountain woods on trees" appearing on most of them) with correspondence from MacGillivray in the Hooker letters at Kew. This proved conclusively that they were his collections and that Kuhn's ascribing them to Cuming in his descriptive papers was an error.

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